NOTICE

The first five volumes of the Minutes of Evidence taken before the Indian Cotton Committee, 1917-19 were issued in 1920. The accompanying Volume VI—Appendix contains Maps and Diagrams pertaining to the Evidence recorded during the Enquiry and should be added to the volumes previously issued.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

INDIAN COTTON COMMITTEE

VOLUME VI

APPENDIX

MAPS AND DIAGRAMS



CALCUTTA
SUPERINTENDENT GOVERNMENT PRINTING, INDIA
1920

[illegible] Lyallpur [illegible]
(Annexure [illegible] to written evidence of Mr. [illegible], Executive Engineer, [illegible] Project Division, Punjab. Vol. III, pages [illegible].)

No. [illegible].—Map [illegible] Canal [illegible]
(Annexure [illegible] to written evidence of Mr. [illegible], Executive Engineer, [illegible] Project Division, Punjab. Vol. III, pages [illegible].)

No. [illegible].—Diagram showing [illegible] Ludhiana District, Punjab.
(Annexure [illegible] to written evidence of Mr. [illegible], Executive Engineer, [illegible] Project Division, Punjab. Vol. III, page [illegible].)

No. [illegible].—Diagram showing [illegible] Ludhiana District, Punjab.
(Annexure [illegible] to written evidence of Mr. [illegible], Executive Engineer, [illegible] Project Division, Punjab. Vol. III, page [illegible].)

No. [illegible].—Diagram showing [illegible] for eleven years 1903—14.
(Annexure [illegible] to written evidence of Mr. [illegible], Executive Engineer, [illegible] Project Division, Punjab. Vol. III, page [illegible].)

No. [illegible].—Diagram showing the rise and fall of the River [illegible] at [illegible].
(Annexure [illegible] to written evidence of Mr. [illegible], C.I.E., Superintending Engineer, Lower Jhelum Canal, Punjab. Vol. III, pages [illegible].)

No. [illegible].—Diagram showing the rise and fall of the River Chenab at [illegible] at Garh [illegible].
(Annexure [illegible] to written evidence of Mr. [illegible], Superintending Engineer, Lower Chenab Canal Circle, Punjab. Vol. III, pages [illegible].)

No. [illegible].—Diagram showing water supplies at the [illegible] Canal, April to June.
(Annexure [illegible] to written evidence of Mr. [illegible] Murray, Superintending Engineer, Derajat Circle, Punjab. Vol. III, pages 125—131.)

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No. 31 [illegible]
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No. 32.—Diagram showing the rise and fall of the River Chenab in 1915-16 at Alexandra Bridge.
(Annexure IV to written evidence of Mr. C. G. May, Executive Engineer, Project Division, Lower Chenab Canal, Punjab. Vol. III, pages 132—139.)

No. 33.—[illegible]

No. 34 [illegible]

No. 35.—Diagram showing the duration and amount of supply in the Sidhnai Canal for 1915-16.
(Annexure VII to written evidence of Mr. C. G. May, Executive Engineer, Project Division, Lower Chenab Canal, Punjab. Vol. III, pages 132—139.)

No. 36 [illegible]

No. 37.—Working record of the Lower Jhelum Canal, 1915-16.
(Annexure IX to written evidence of Mr. C. G. May, Executive Engineer, Project Division, Lower Chenab Canal, Punjab. Vol. III, pages 132—139.)

No. 38.—Diagram comparing percentages of the Chief Crops irrigated by various canals in the Punjab in 1915-16.
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No. 39.—Diagram comparing percentages of the Chief Crops irrigated in villages cultivated by different classes of cultivators during 1915-16.
(Annexure XI to written evidence of Mr. C. G. May, Executive Engineer, Project Division, Lower Chenab Canal, Punjab. Vol. III, pages 132—139.)

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No. 26.—Diagram showing rise and fall of the River Jhelum in 1915-16.
(Annexure V to evidence of Mr. W. P. Sangster, C.I.E., Superintending Engineer, Lower Jhelum Circle, Punjab. Vol. III, pages 76—88.)

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No. 28.—Diagram illustrating water supplies in the Sidhnai Canal, April to June.
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No. 29.—Diagram illustrating water supplies in the Sidhnai Canal, September and October.
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Lower

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(Annexure I to evidence of Mr. A. B. Timms, Executive Engineer, Jamrao Canals, Northern District, Sind. Vol. III, pages 158—161.)

[illegible] of the Sirhind Canals (Major Works).

(Annexure X to written evidence of Mr. H W. Nicholson, Executive Engineer, Sirhind Project Division, Punjab. Vol. III, pages 68—74)

No. 22.—Diagram showing capacity of Sirhind Canal Main line.

(Annexure XI to written evidence of Mr. H. W. Nicholson, Executive Engineer, Sirhind Project Division, Punjab. Vol III, pages 68—74)

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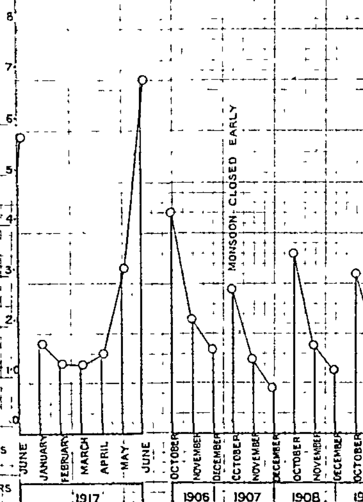


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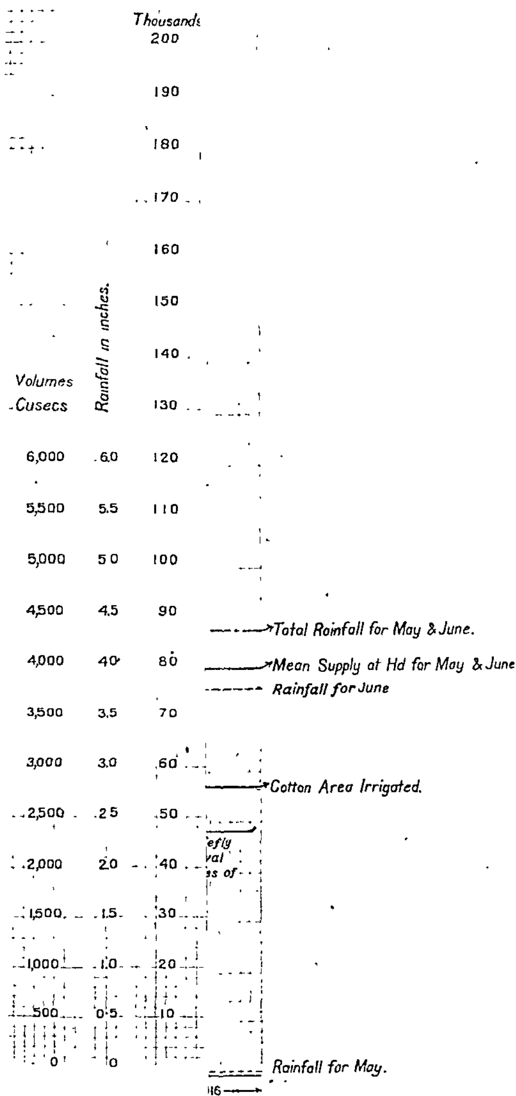


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20000 40000 60000 80000 100000 120000 140000 160000 180000 200000-ARE.

1" 2" 3" 4" ← RAINFALL IN INCHES

U.G.Canal area in acres

L. G. CANAL AREA-IN ACRES

IRRIGATION RATE REDUCED FROM RS.3. TO RS 2 PER ACRE

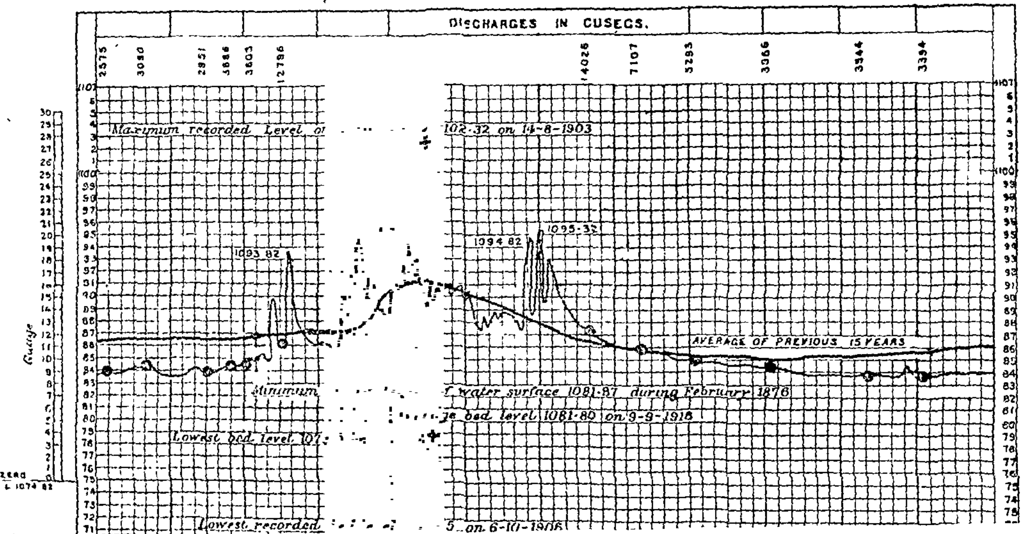
L.G.C RAINFALL IN INCHES

YEAR 1902 1903 1904 1905 1906 1907 1908

o. J. n xui e i e c r. . . aune, uper-
intending Engineer, Western Jumna Canal Circle,
Punjab.

RISE AND FALL OF THE RIVER JUMNA 1916-1917
AT HATHNIKUND.

Note - The discharges at ● were actually observed.



No. 7. Annexure I to evidence of Mr. A. S. Gibb, Executive Engineer, Upper Bari Doab Canal, Punjab.

DIAGRAM SHOWING CURVE OF EACH SUPPLY FAVOURABLE TO AMERICAN COTTON.

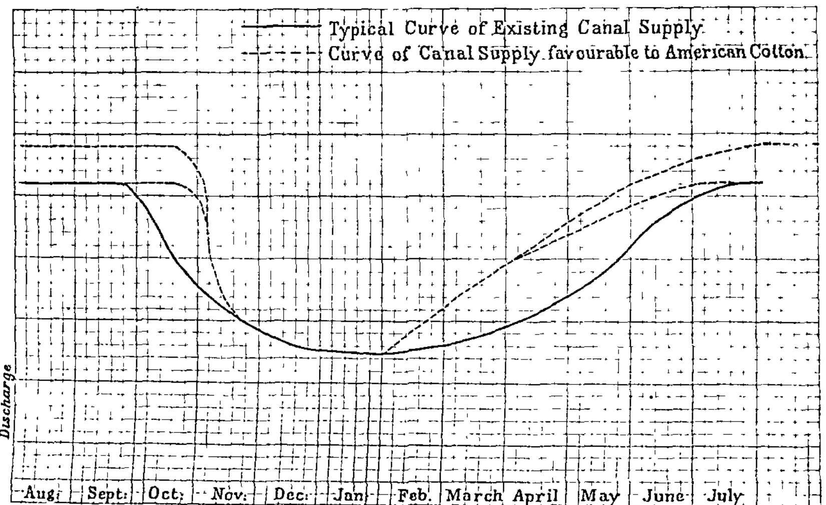


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No. 8. Annexure II to evidence of Mr. A. S. Gibb, Executive Engineer, Upper Bari Doab Canal, Punjab.

TYPICAL PUNJAB RIVER SUPPLY DIAGRAM.

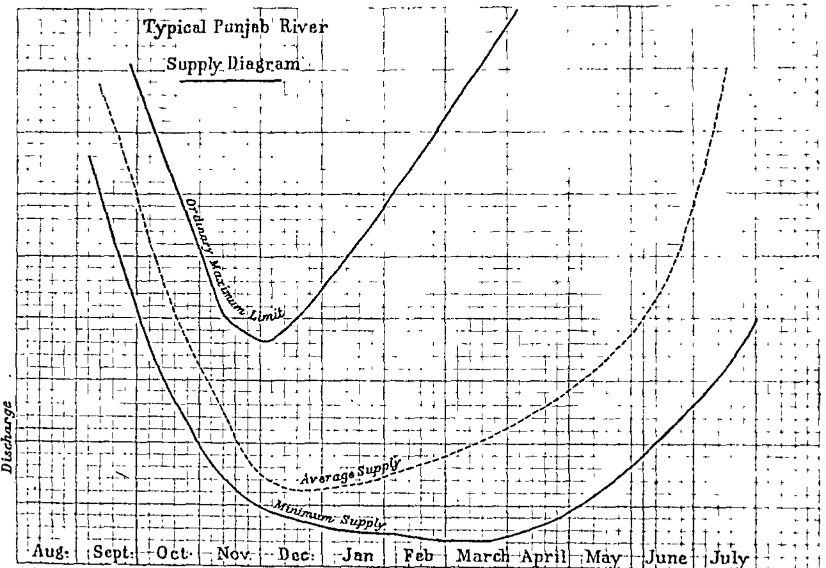


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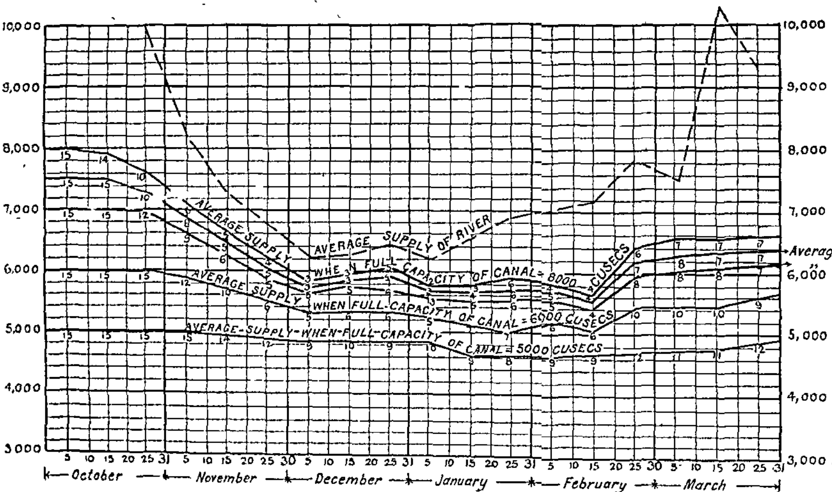
No. 9. Annexure III to evidence of r. A. S. Gibb, Executive Engineer, Upper Bari Doab Canal, Punjab.

DIAGRAM SHOWING AVERAGE RABI SUPPLIES THAT CAN BE TAKEN BY CANALS

OF DIFFERENT FULL CAPACITY

RABI

AVERAGE BASED ON FIGURE FOR TENDAY PERIODS FOR 15 YEARS 1902-03 TO 1916-17.



Average Rabi supplies for Canals of different Full Capacities based on record of 15 Years (Blac

Canal of	8000	cusecs	Capacity	will	take	6463 cu
"	7500	"	"	"	"	6249
"	7000	"	"	"	"	6019
"	6000	"	"	"	"	5482
"	5000	"	"	"	"	4820

N.B. Numbers on curves indicate for each half n The number of years out of a total of 15 year which the available river supply equals or ex the full capacity of the Canal.

A. S. GIBB,
Executive Engineer,

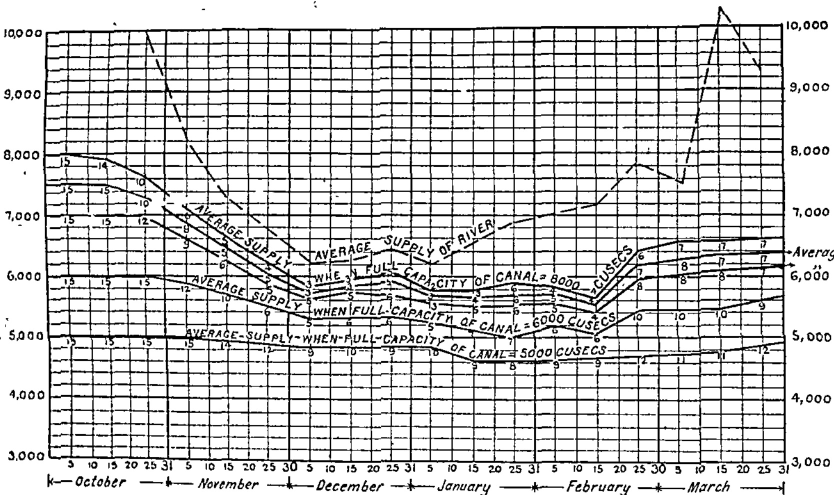
Photo. Zinco, February, 1920 —

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A. S. GIBB,
Executive Engineer,

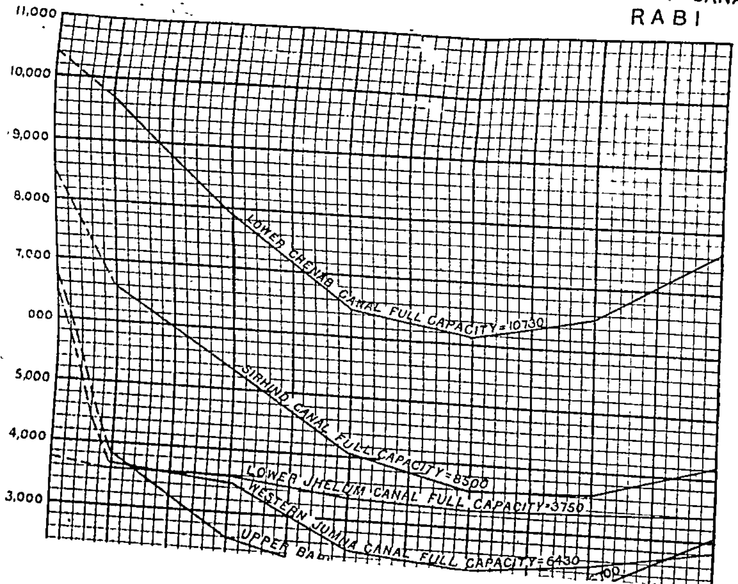
Photo. Zinco, February, 1920 —N

Engineer, Upper Bari Doab Canal, Punjab.

DIAGRAMS SHOWING AVERAGE MONTHLY SUPPLIES

TAKEN BY CANALS

RABI



Averages of 16 years 1899-00 to 1914-15 except L which is averaged for 10 years only 1904-05 to

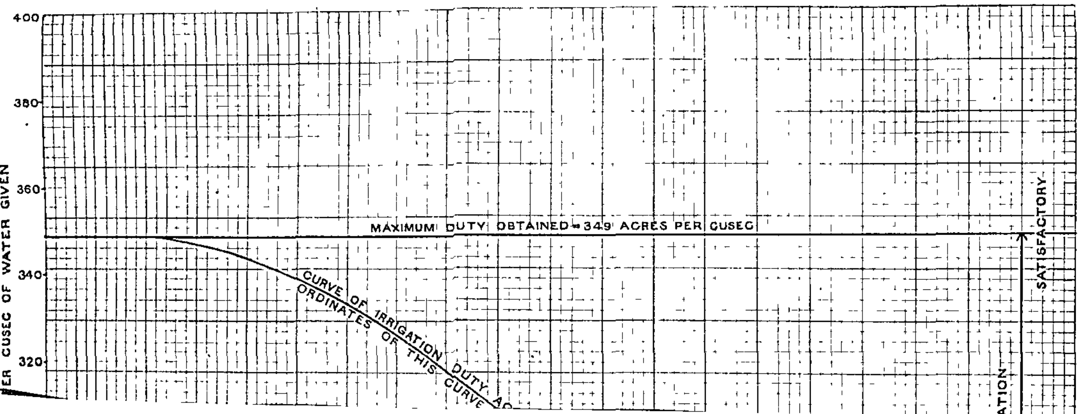
	FULL CAPACITY OF CANAL. (a)	AVERAGE RABI SUPPL (b)
Western Jumna	6430	2889
Sirhind	8500	4583
Upper Bari Doab	6700	2613
Lower Chenab	10730	7435
Lower Jhelum	3750	3334

No. 11. Annexure V to evidence of T. A. S. Gibb, Executive Engineer, Upper Bari Doab Canal, Punjab.

DIAGRAM SHOWING COMPARATIVE EFFICIENCIES OF IRRIGATION DONE

FOR VARYING DEGREES OF LIBERALITY OF WATER SUPPLY ALLOWED

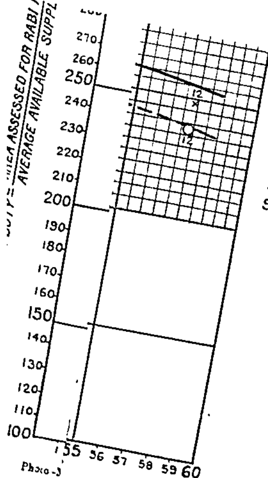
DERIVED FROM OBSERVATIONS MADE ON LOWER CHENAB CANAL PUNJAB-INDIA.



...DUTY – AREA ASSESSED FOR KHARIF IRRIGATION.

x8

30 31 32 33 34 35 36



2 Delhi
3. Rohtak ,,
4. Hissar (Only
5 Ferozepur ,,
6 Bhatinda ,,
7. II. Division Upper
8 III. ,, ,,
9. IV. ,, ,,
(Only

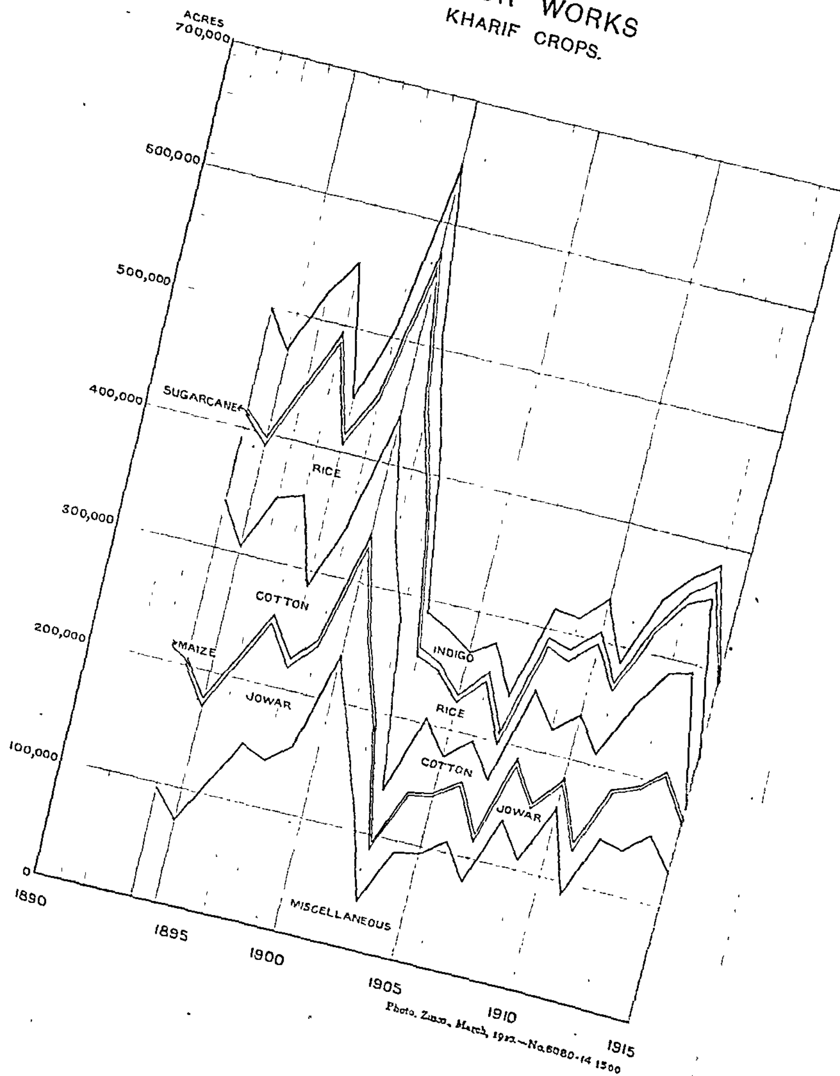
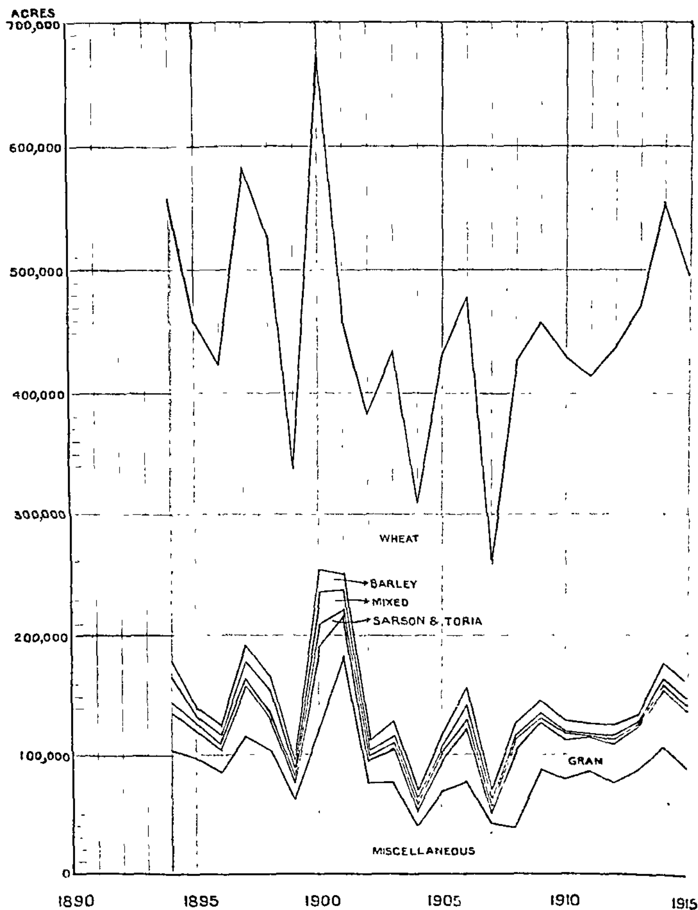


Photo. Zinco., March, 1922.—No. 6080-14 1500

No. 17 Annexure VI to written evidence of Mr. H. W. Nicholson
Executive Engineer, Sirhind Project Division, Punjab.

PUNJAB CANALS
MINOR WORKS
RABI CROPS.



No. 18. Annexure VII to written evidence of Mr. H.W. Nicholson, Executive Engineer, Sirhind Project Division, Punjab.

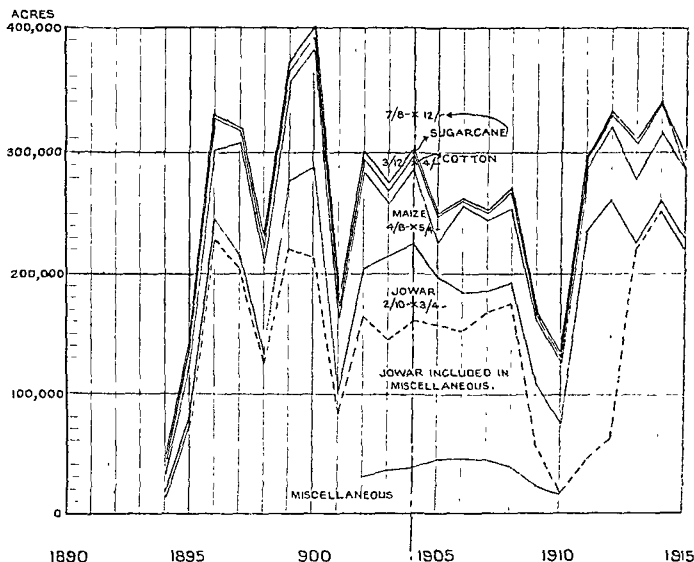
PUNJAB CANALS

SIRHIND CANALS

(MAJOR WORKS)

KHARIF CROPS

BRITISH BRANCHES.



NOTIFICATION FOR CANAL WATER RATE

6616 Ʒ D/-27/11/88 × 2733 D/-21/12/04

No. 19. Annexure VIII to written evidence of Mr. H. W. Nicholson, Executive Engineer, Sirhind Project Division, Punjab.

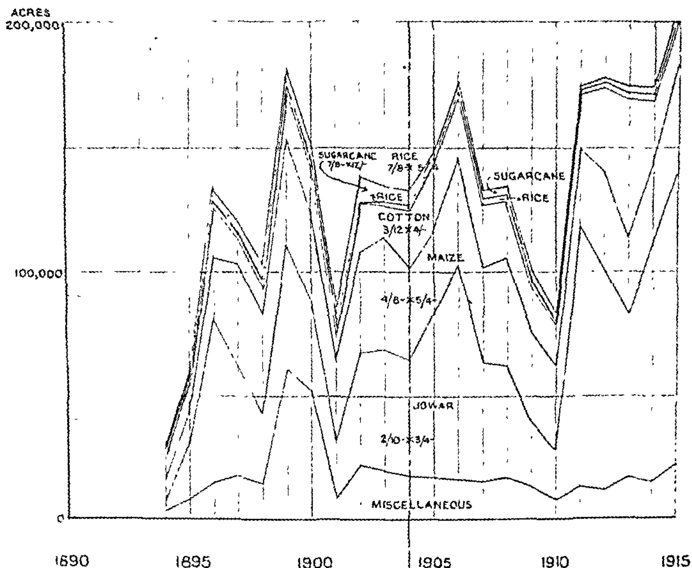
PUNJAB CANALS

SIRHIND CANALS

(MAJOR WORKS)

KHARIF CROPS

NATIVE STATES.



NOTIFICATION FOR CANAL WATER RATE

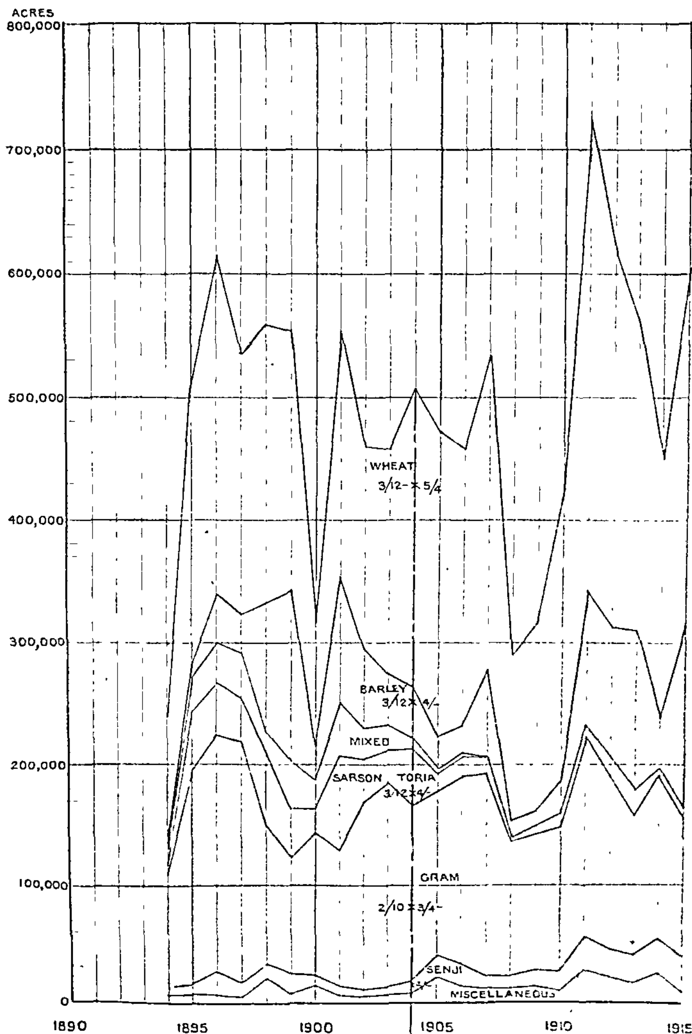
6616 I. D/-27/11/88 * 273 I. D/-21-12-1904

SIRHIND CANALS

(MAJOR WORKS)

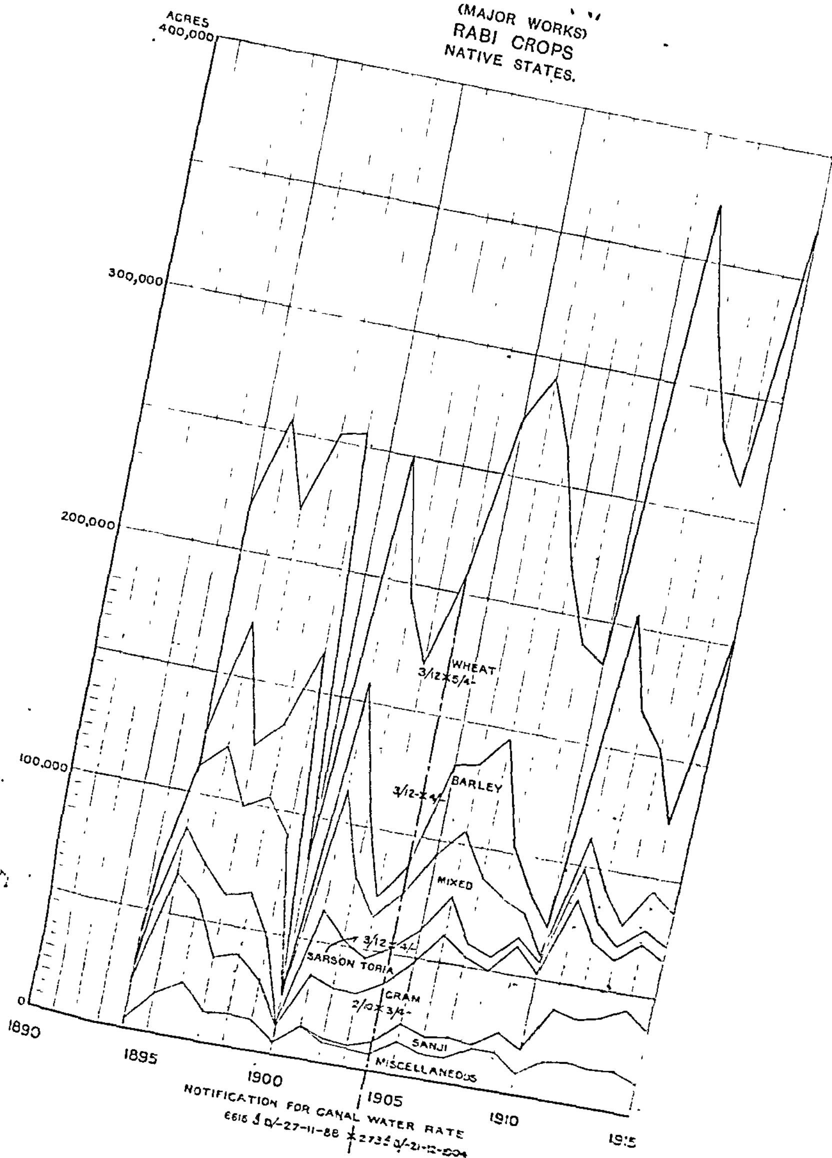
RABI CROPS

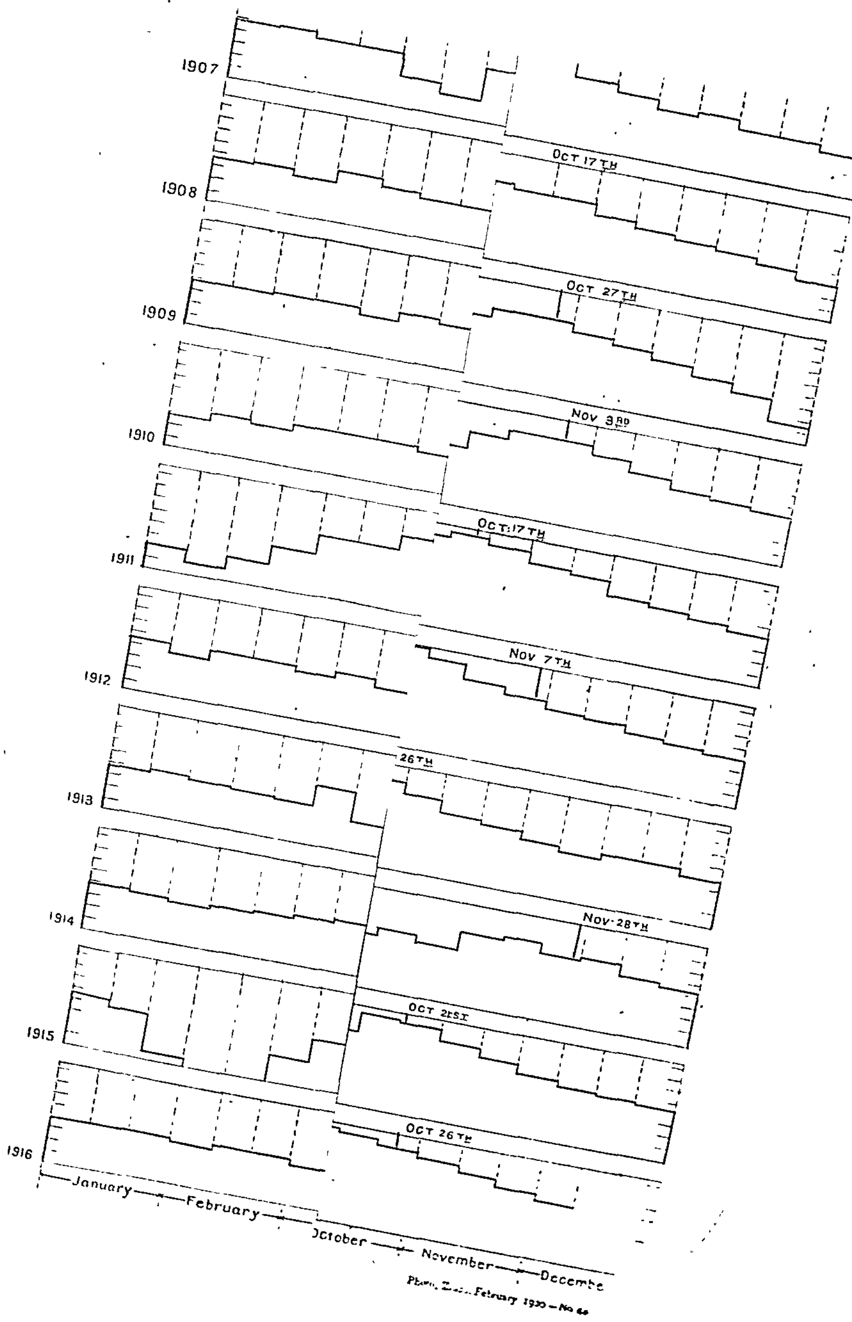
BRITISH BRANCHES.



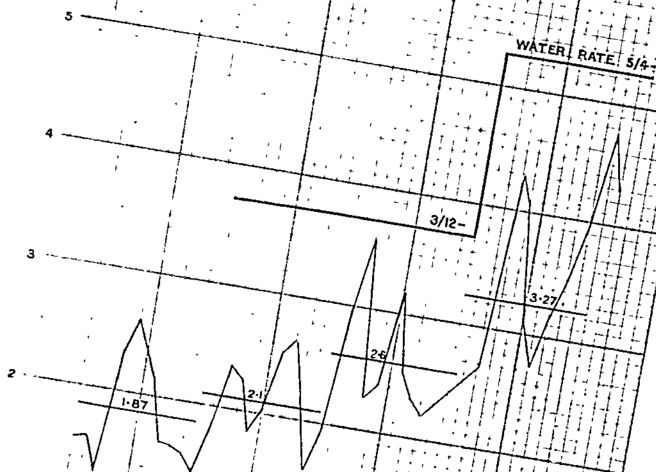
NOTIFICATION FOR CANAL WATER RATE

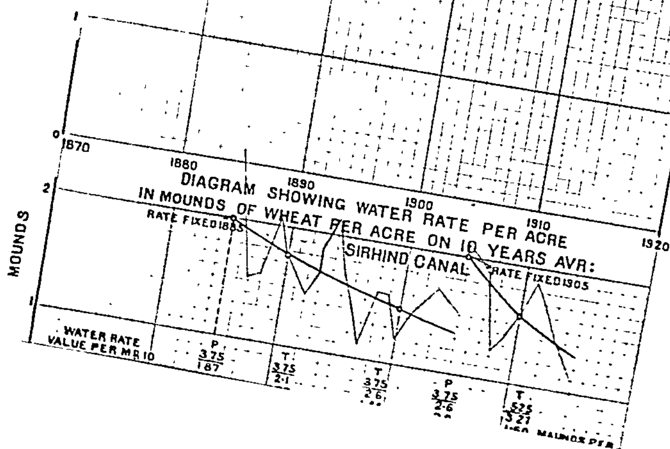
6616 Ꞩ D/-27-11-89 × 273 Ꞩ D/-21-12-1904


(MAJOR WORKS)
RABI CROPS
NATIVE STATES.
ACRES
400,000
300,000
200,000
100,000
0
1890
1895
1900
1905
1910
1915
WHEAT
3/12 X 5/4-
BARLEY
3/12-X 4/-
MIXED
3/12 X 4/-
SARSON TORIA
GRAM
2/10 X 3/4-
SANJI
MISCELLANEOUS
NOTIFICATION FOR CANAL WATER RATE
6615 D/-27-11-88 X 2735 D/-21-12-1904


1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
Oct 17TH
Oct 27TH
Nov 3RD
Oct 17TH
Nov 7TH
26TH
Nov 28TH
Oct 21ST
Oct 26TH
January
February
October
November
December

LUDHIANA DISTRICT.





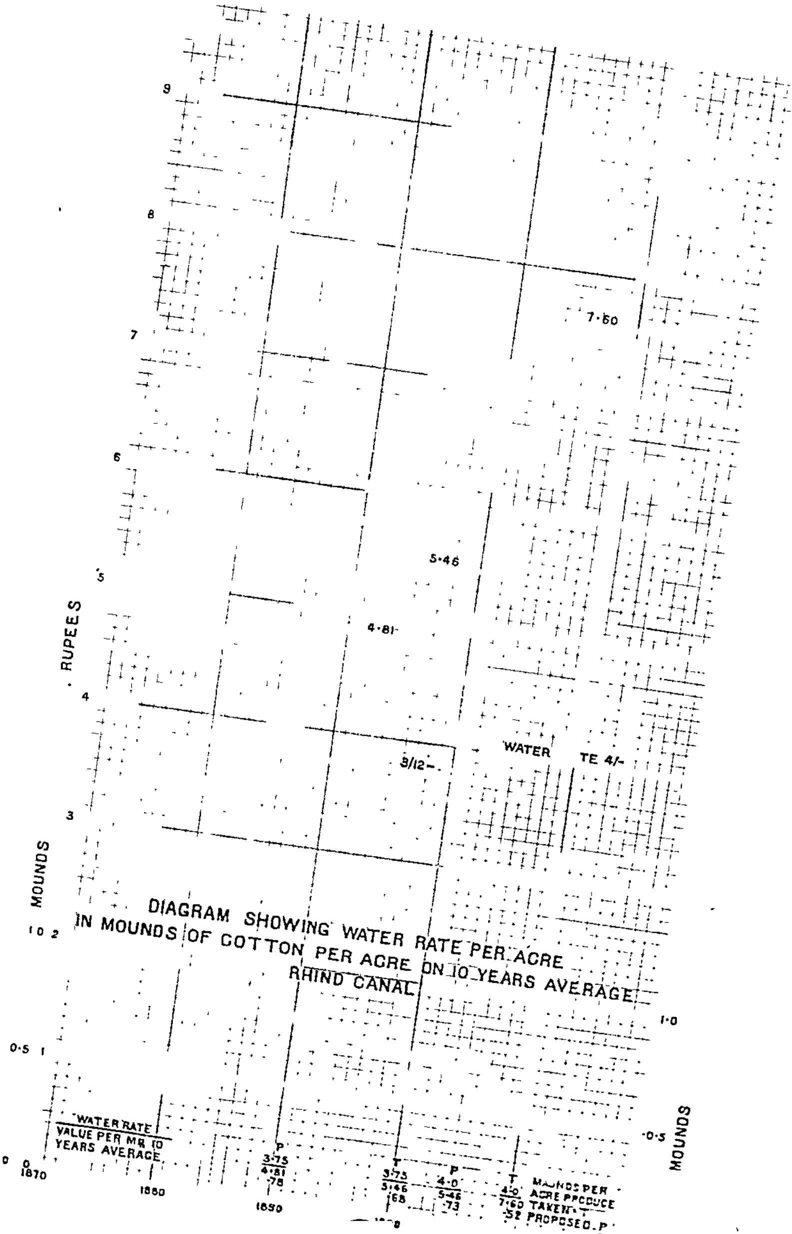


Photo. Zinco, April, 1920.

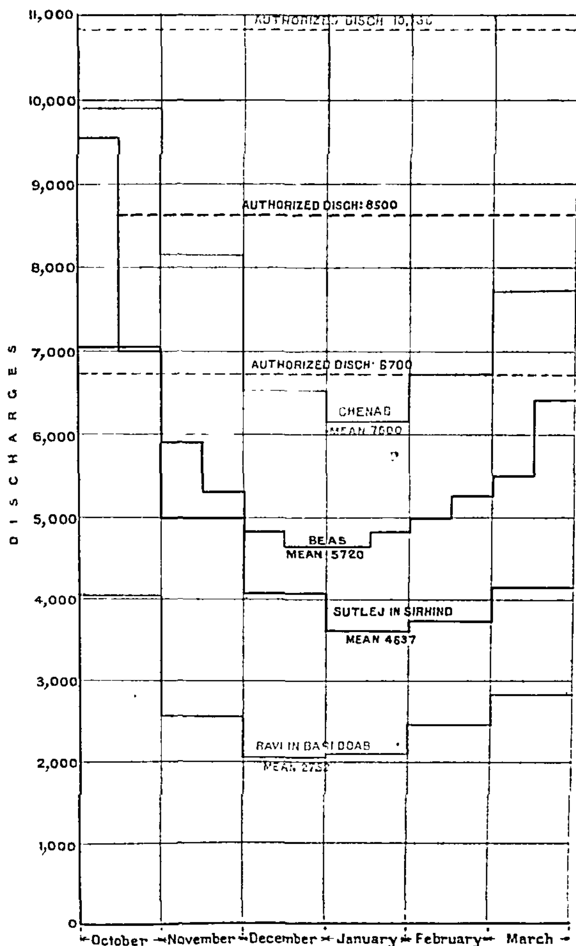
xecutive ngineer, ir ind roject ivision, unja .

MEAN DISCHARGES OF RIVERS IN RABI

II YEARS MEAN 1903—14

MEASURED IN CANAL

(EXCEPT BIAS).



No.680-23

APRIL MAY

5 10 15 20 25 5 10 15 20 25

65436

73685

MAXIMUM R



GAUGE

ZERO
R.L 672.00

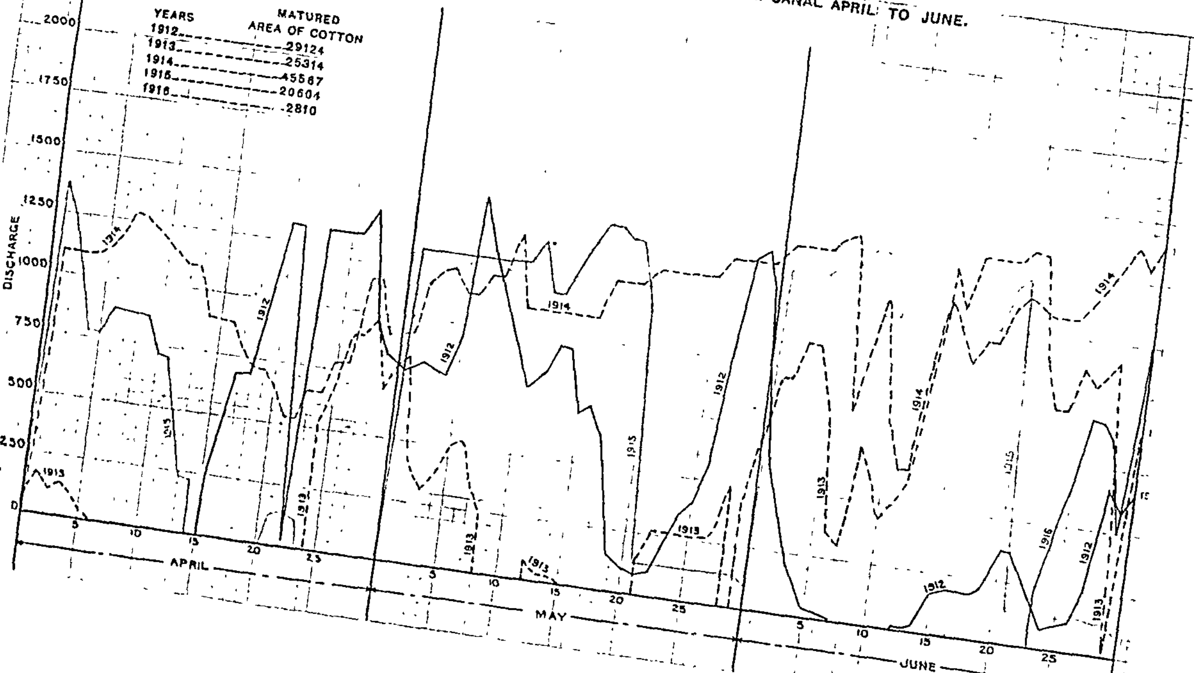
No. 27. Annexure VII to written evidence of Mr. F. T. Bates, Superintending Engineer, Lower Chenab Canal Circle, Punjab.

RISE AND FALL DIAGRAM

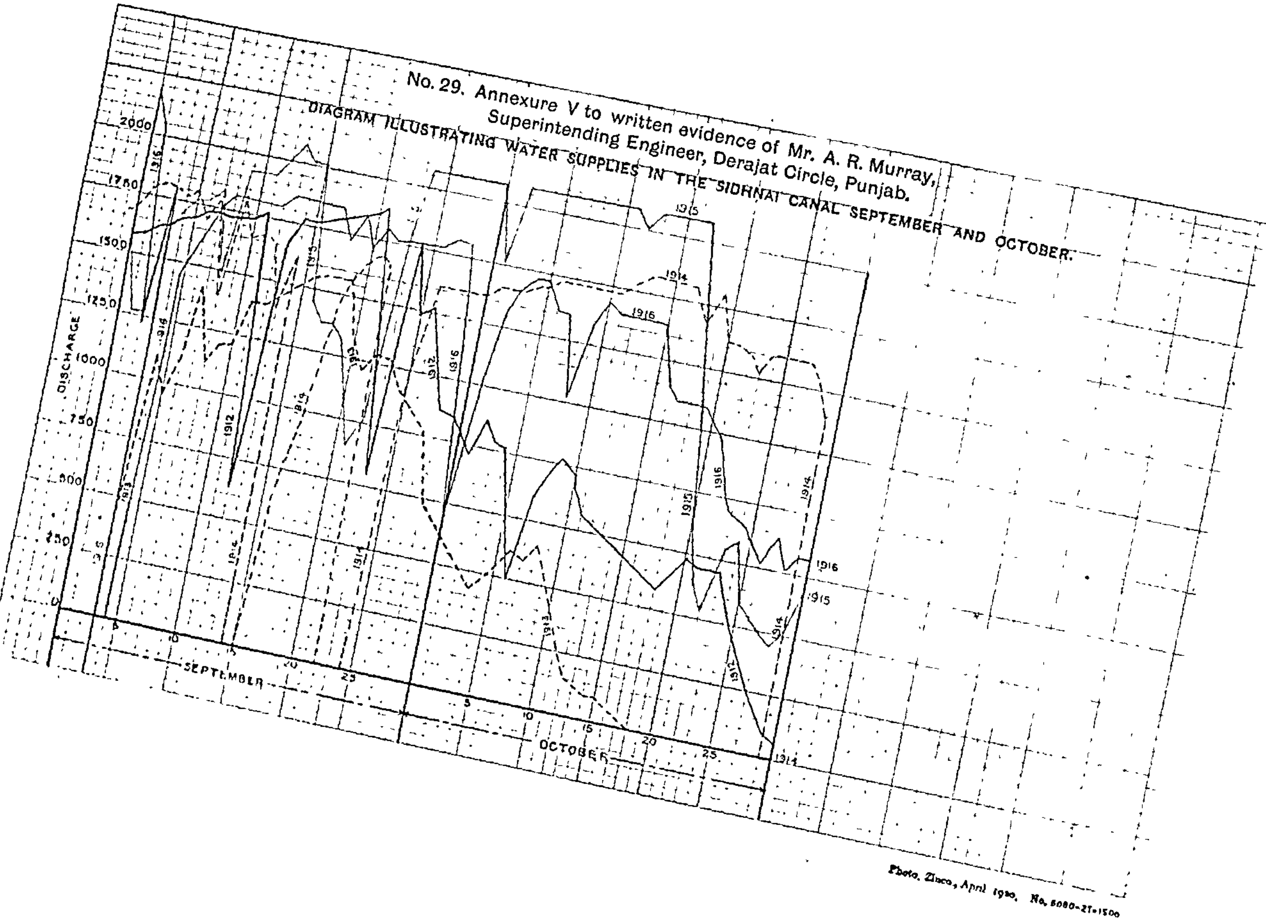
AT GARHI GOLA FOR 1915-16.

No. 28. Annexure IV to written evidence of Mr. A. R. Murray, Superintending Engineer, Derajat Circle, Punjab.

DIAGRAM ILLUSTRATING WATER SUPPLIES IN THE SIDHNAI CANAL APRIL TO JUNE.



Photo, Zincs. April 1920 – No. 6080-28-1500


No. 29. Annexure V to written evidence of Mr. A. R. Murray,
Superintending Engineer, Derajat Circle, Punjab.
DIAGRAM ILLUSTRATING WATER SUPPLIES IN THE SIDRNAI CANAL SEPTEMBER AND OCTOBER.
DISCHARGE
2000
1750
1500
1250
1000
750
500
250
0
SEPTEMBER
10
15
20
25
OCTOBER
5
10
15
20
25
1912
1913
1914
1915
1916
Photo. Zinco, April 1920. No. 6080-21-1500

No. 30. Annexure VI to written evidence of Mr. A. R. Murray, Superintending Engineer, Derajat Circle, Punjab.

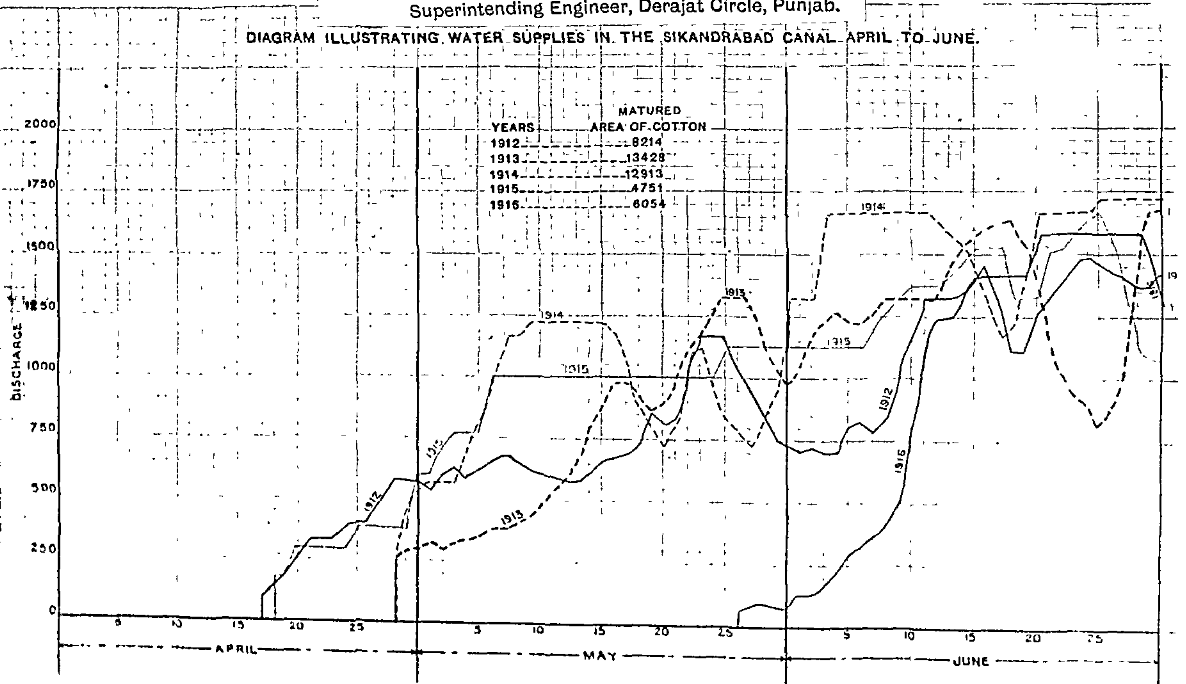


Photo. Zinco., April, 1920.—No 603-20-1500

No. 31. Annexure VII to written evidence of Mr. A. R. Murray, Superintending Engineer, Derajat Circle, Punjab.

DIAGRAM ILLUSTRATING WATER SUPPLIES IN THE SIKANDRABAD CANAL SEPTEMBER AND OCTOBER.

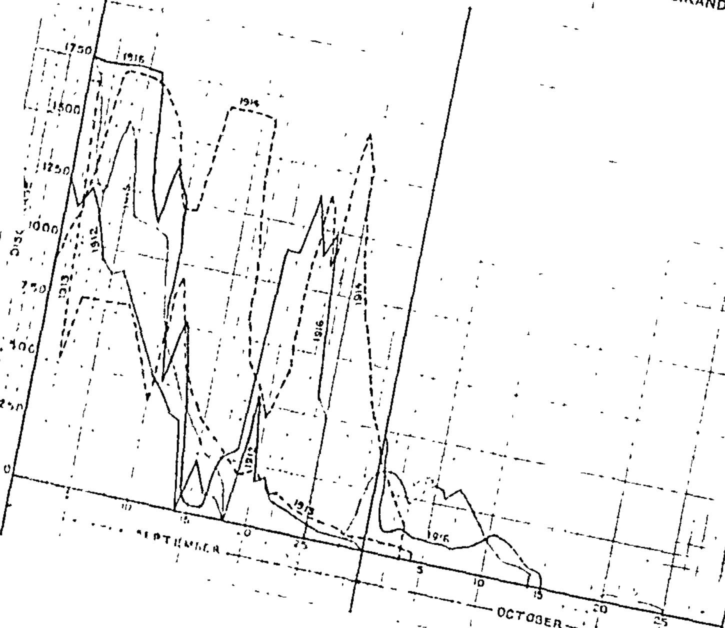


Photo Zinco, April, 1930

No. 32. Annexure IV to written evidence of Mr. C. G. May, Executive Engineer, Project Division, Lower Chenab Canal, Punjab.

RISE AND FALL OF THE RIVER CHENAB 1915-1916 AT ALEXANDRA BRIDGE.

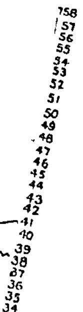
DISCHARGES IN CUSECS

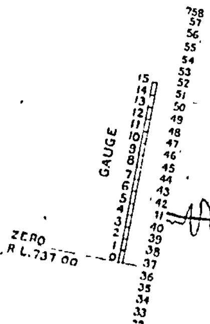
MAXIMUM RECORDED LEVEL OF WATER SURFACE 752 2 ON 24.7.1903

747·3

AVERAGE OF PREVIOUS 37 YEARS

MAXIMUM RECORDED LEVEL OF WATER SURFACE 736·0 ON 6 2.1913

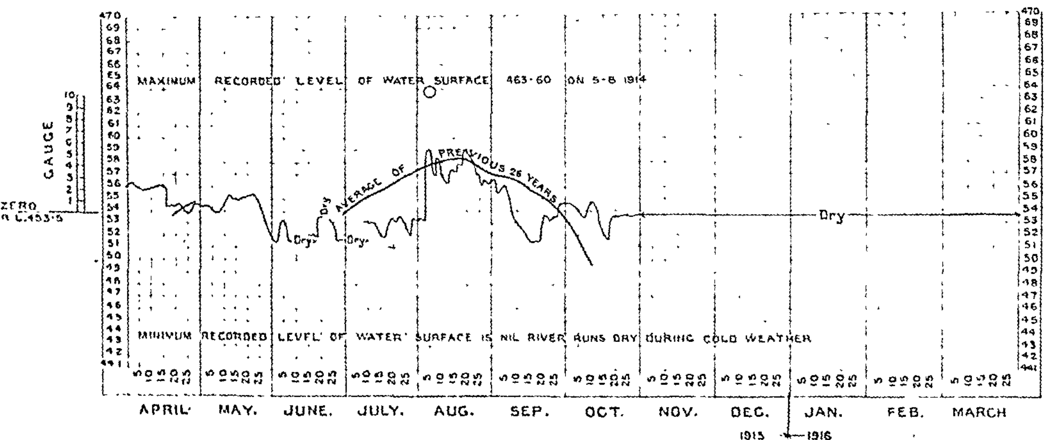




No. 33. Annexure V to written evidence of Mr. C. G. May, Executive Engineer, Project Division, Lower Chenab Canal, Punjab.

RISE AND FALL OF THE RIVER RAVI 1915-1916

BELOW SIDHNAI DAM.



C. R. MAY,
Executive Engineer,
Project Division Lower Chenab Canal,
5th December, 1917.

Photo, Zinco, March, 1920 – No. 5080 31-1390

NOTE.

APRI FEBRUARY

MARCH

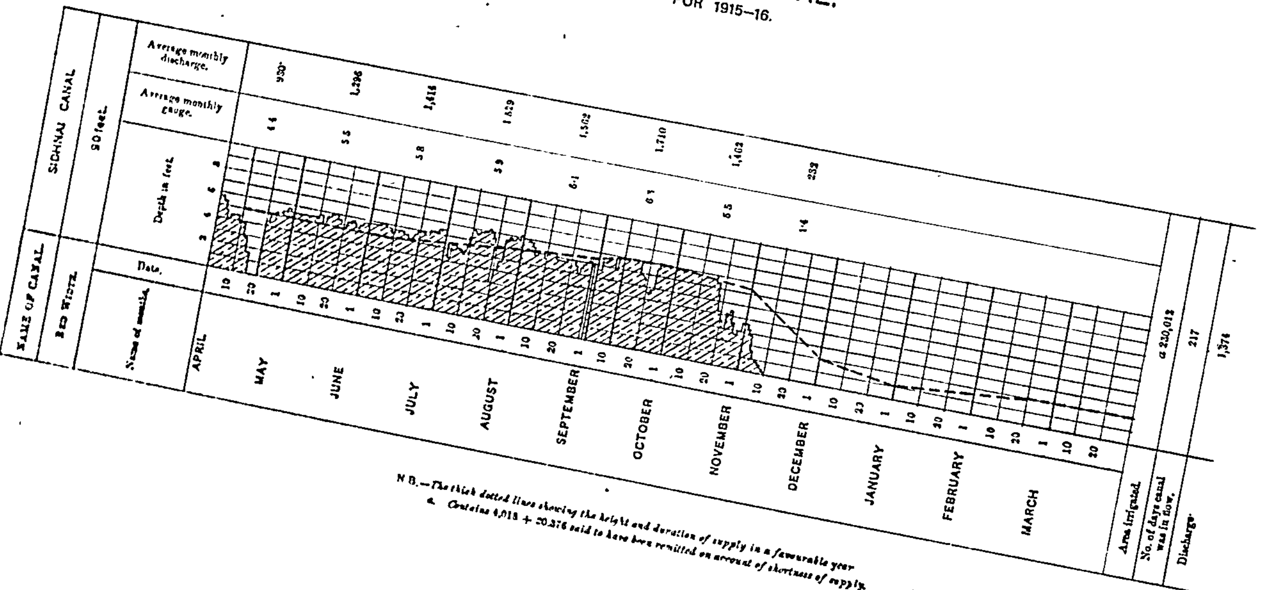
RGE IN CUSECS

RIGATED

RGE IN CUSECS

No. 35. Annexure VII to written evidence of Mr. C. G. May, Executive Engineer, Project Division, Lower Chenab Canal, Punjab.

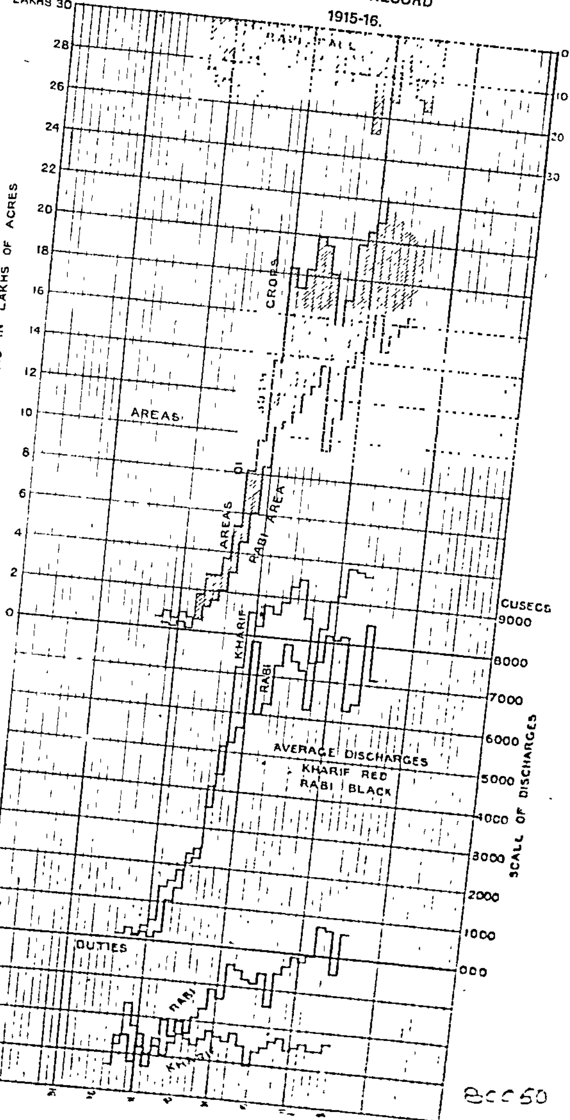
DIAGRAM SHOWING THE DURATION AND AMOUNT OF SUPPLY IN THE SIDHNAI CANAL. FOR 1915–16.



N.B.—The thick dotted lines showing the height and duration of supply in a favourable year.

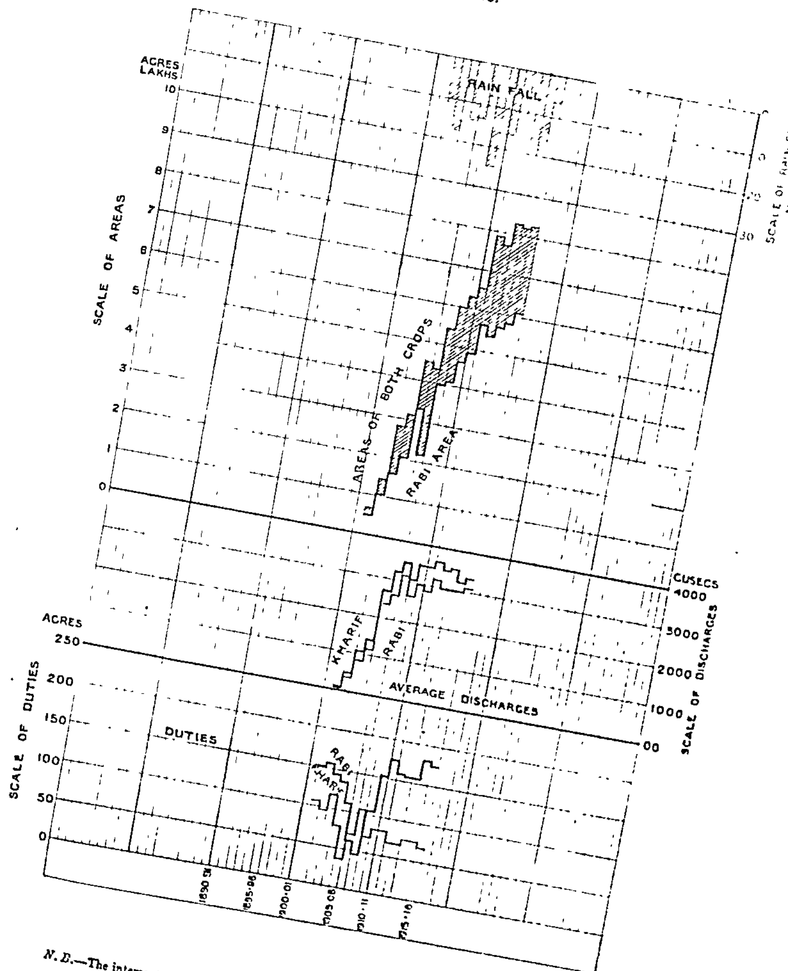
a Contains 4,018 + 20,376 said to have been remitted on account of shortness of supply.

Photo. Zinco., February, 1910.—No.


WORKING RECORD
1915-16.
ACRES
LAKHS 30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
SCAEE OF AREAS IN LAKHS OF ACRES
RAINFALL
0
10
20
30
SCALE OF RAINFALL IN INCHES
CROPS
AREAS
AREAS
RABI AREA
KHARIF
RABI
CUSECS
9000
8000
7000
6000
5000
4000
3000
2000
1000
000
SCALE OF DISCHARGES
AVERAGE DISCHARGES
KHARIF RED
RABI BLACK
ACRES
200
150
100
50
0
SCALE OF DUTIES
DUTIES
RABI

B C C 50

WORKING RECORD
1915-16.



N. B.—The intercepts in red area give the Kharif irrigation each year. The discharges are measured at mile 14 of the main canal and give averages for each crop. The duties are derived from these areas and discharges.

No. 56. Annexure X to written evidence of Mr. C. G. May, Executive Engineer, Project Division, Lower Chenab Canal, Punjab.

DIAGRAM COMPARING THE PERCENTAGES OF THE CHIEF CROPS IRRIGATED BY VARIOUS CANALS IN THE PUNJAB DURING THE YEAR 1915-16.

100 %
90 %
80 %
70 %
60 %
50 %
40 %
30 %
20 %
10 %
0

WESTERN JUMNA CANAL: OTHERS; FODDER 6.2 %; SUGARCANE 7.4 %; FODDER GRAINS 8.9 %; COTTON AND MELONS 13.8 %; FOOD GRAINS 59.5 %

SIRHIND CANAL BRITISH: FODDER GRAINS 13.3 %; FODDER 27 %; FOOD GRAINS 59.2 %

UPPER BARIDOAB CANAL: OTHERS; SUGARCANE 2.8 %; OIL SEEDS 4.3 %; FODDER GRAINS 6.5 %; COTTON AND MELONS 9.2 %; FODDER 19.4 %; FOOD GRAINS 54.6 %

LOWER CHENAB CANAL: OTHERS; FODDER GRAINS 3 %; COTTON AND MELONS 8.4 %; OIL SEEDS 11.0 %; FODDER 14.3 %; FOOD GRAINS 58.2 %

LOWER JHELUM CANAL: OTHERS; FODDER GRAINS 3.2 %; COTTON AND MELONS 3.8 %; FODDER 8.7 %; OIL SEEDS 11.9 %; FOOD GRAINS 70.4 %

UPPER CHENAB CANAL: FODDER GRAINS; FODDER 9.2 %; OIL SEEDS 9.6 %; FOOD GRAINS 77.2 %

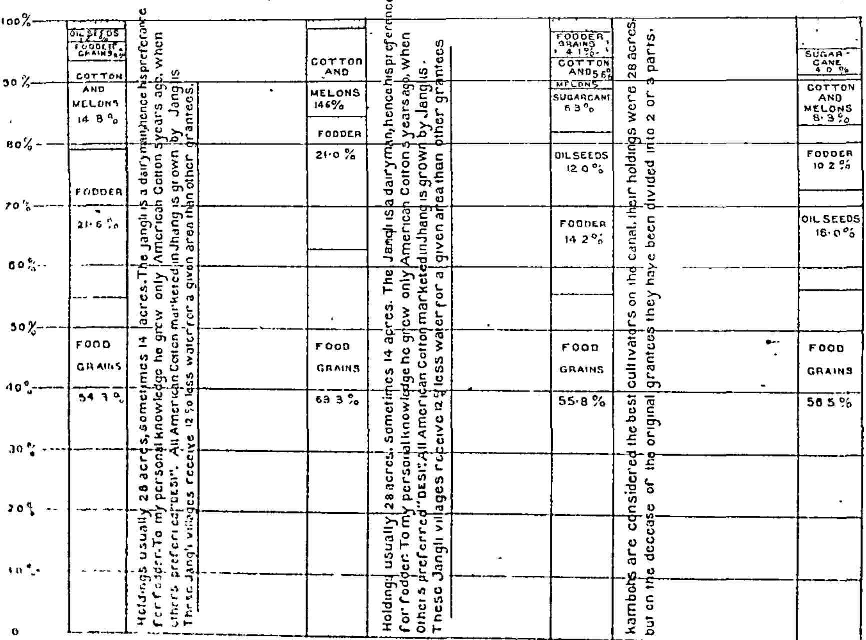
LOWER BARIDOAB CANAL: COTTON AND MELONS 11.0 %; FODDER 11.5 %; OIL SEEDS 18.6 %; FOOD GRAINS 59.1 %

SIDHNAI CANAL: OIL SEEDS 4.1 %; FODDER GRAINS 7.7 %; COTTON AND MELONS 11.3 %; FODDER 17.5 %; FOOD GRAINS 59.5 %

NOTE.- Melon and Cotton areas have been grouped together because the former is only in extremely rare cases

No. 39. Annexure XI to written evidence of Mr. C. G. May, Executive Engineer, Project Division, Lower Chenab Canal, Punjab.

DIAGRAM COMPARING THE PERCENTAGES OF THE CHIEF CROPS IRRIGATED IN VILLAGES CULTIVATED BY DIFFERENT CLASSES OF CULTIVATORS DURING THE YEAR 1915-16.



GREAT
ILLET

RAWAN

OTTON

OTTON &
IELONS
AIZE
MAIZE

CHINA

REAT
ILLET

IELONS
OTTON

OTTON

SSED 36-0-9
35-1-0

RABI 1916-17

BARLEY WHEAT WHEAT WHEAT

WHEAT WHEAT WHEAT WHEAT

TURNIPS TURNIPS METHRA WHEAT

TURNIPS TURNIPS SENJI & LUCERNE GRASS WHEAT

TURNIPS TURNIPS LUCERNE GRASS METHRA

WHEAT WHEAT WHEAT

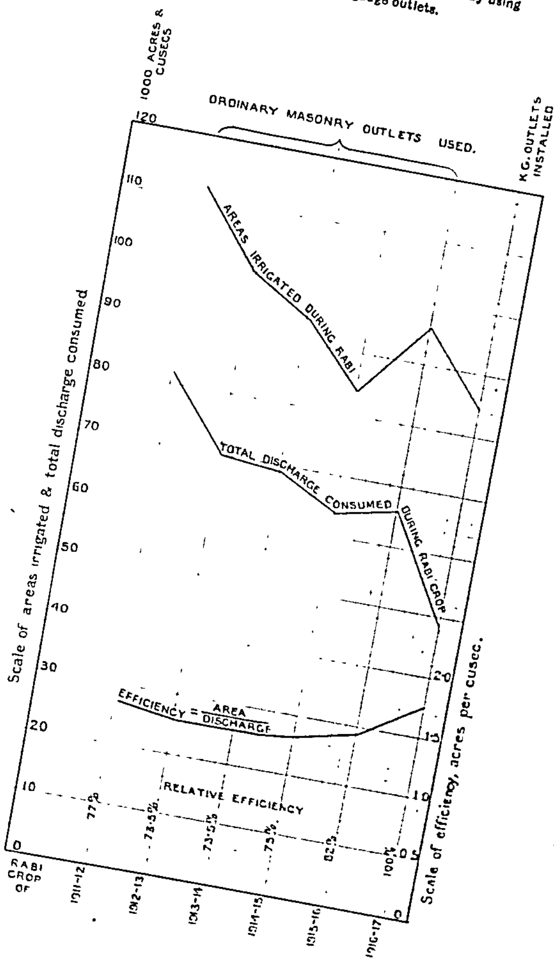
BARLEY

WHEAT WHEAT WHEAT

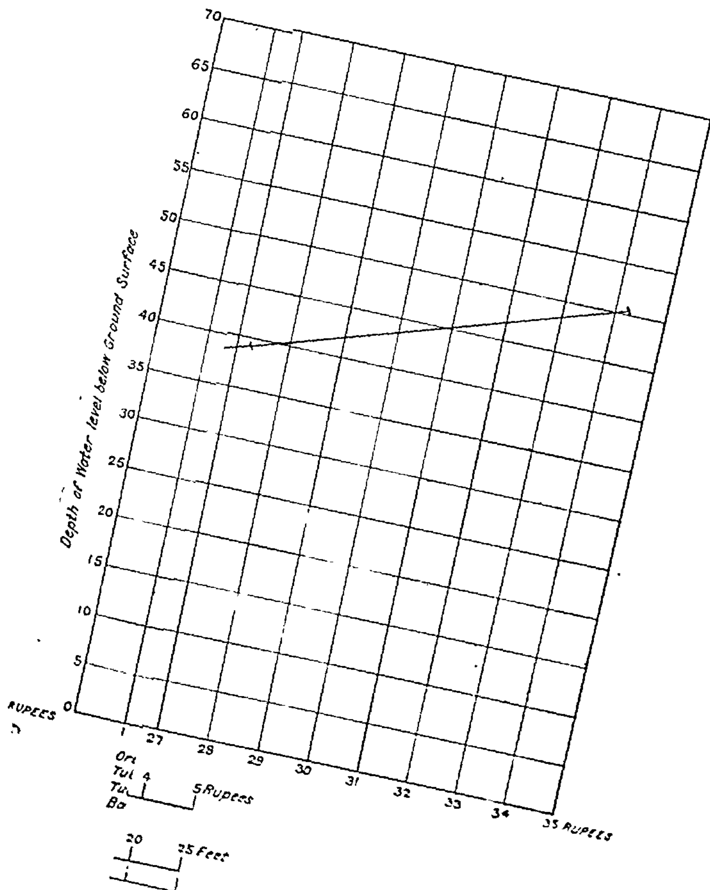
TOTAL REVENUE ASSESSED 66-13-6
WATER RATE 71-12-0

WHEAT RAPE RAPE WHEAT WHEAT
BARLEY

LOWER CHENAB CANAL
HAFIZABAD DIVISION
Diagram illustrating efficiency attained by using kennedy gauge outlets.

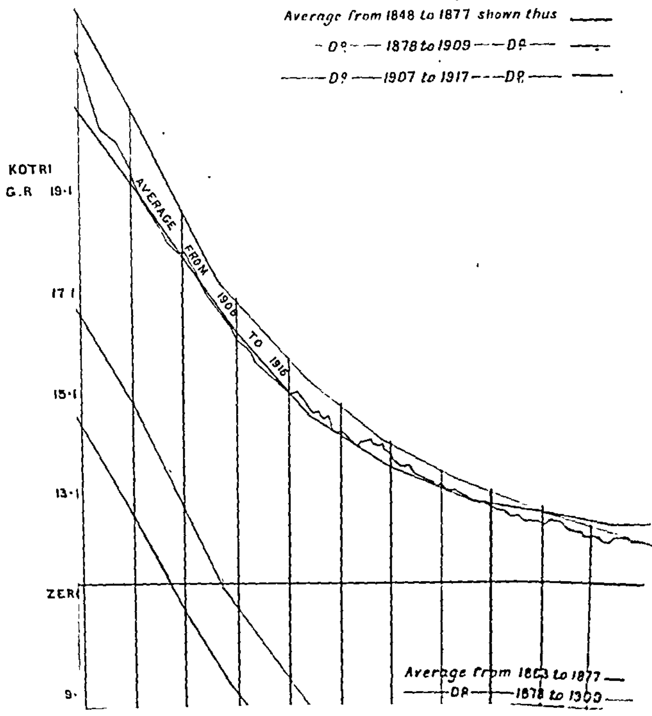


C. E. MAY,
Executive Engineer,
Project Division Lower Chenab Canal.
3rd January, 191



Depth of Water level below Ground Surface
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
RUPEES
27
28
29
30
31
32
33
34
35 RUPEES
4
5 Rupees
20
25 Feet

G.R.



Average from 1848 to 1877 shown thus
— D° — 1878 to 1909 — D° —
— D° — 1907 to 1917 — D° —
KOTRI
G.R
19·1
17 1
15·1
13·1
ZER(
9·
AVERAGE FROM 1906 TO 1916